mission to inquire into property and incomes of the Universities of Oxford and Cambridge. He was a Curator of the Bodleian Library, an honorary Fellow of Queen's College, a member of the governing body of Winchester College, and a visitor of the Greenwich Observatory. He was appointed Master of Pembroke College in 1891.

By his remarkable diligence and geniality, and his services in furthering scientific interests at Oxford, Prof. Price became a distinguished feature of his University, where his death will be deeply regretted.

NOTES.

SCIENCE is to be congratulated that two well-known workers for its advancement are included in the list of New Year honours. We refer to Prof. W. C. Roberts-Austen, who has been promoted from the rank of Companion of the Order of the Bath (C.B.) to a Knight Commandership (K.C.B.), and Mr. W. T. Thiselton-Dyer, who has been raised to the rank of Knight Commander of the Order of St. Michael and St. George (K.C.M.G.). Two distinguished members of the medical profession have had honours conferred upon them—Sir Henry Thompson receiving the dignity of a baronetcy, and Dr. Hermann Weber the honour of knighthood. Mr. J. F. Flannery, ex-President of the Institute of Marine Engineers, has also been knighted.

THE recent retirement of Sir John Evans from the Treasurership of the Royal Society, after a period of service of twenty years, has given an opportunity for Fellows of the Society to show their appreciation of the efficient manner in which he discharged the duties of his office. It is proposed to have his portrait painted in oil colours, and to hang it on the walls of the Society's apartments at Burlington House. This would be an appropriate form of recognition of the long association of the Treasurer with the interests of the Society. A number of subscriptions have already been received, and any Fellows of the Society who wish to contribute should send their donations to the Assistant Secretary.

A TELEGRAM from Sydney has been received at the Royal Society stating that the boring into the coral at Funafuti had been discontinued on reaching a depth of 1114 feet. An account of recent operations at Funafuti appeared in NATURE of November 3, 1898 (p. 22).

AT St. Petersburg, last week, a Pan-Russian congress of climatology, hydrology, and balneology was opened by the Grand Duke Paul, as president of the Society for the Preservation of Public Health, for the discussion of means of improving and better utilising the health resorts, bathing places, and mineral waters which now abound in various parts of the empire, especially in the Crimea and the Caucasus.

THE French Government is about to adopt precautionary measures against the introduction of the San José scale into France. Decrees will be issued prohibiting the importation of trees, shrubs and plants from the United States, and requiring an inspection of all fruits, fresh and dried, at the point of landing in France.

THE death of Dr. John Stillwell Schanck, emeritus professor of chemistry and hygiene in Princeton University, is recorded in *Science*. Dr. Schanck was born in 1817, and began the practice of medicine at Princeton in 1843. In 1847 he was made lecturer in zoology at the College, and in 1856 was elected professor of chemistry, to which the chair of natural history was added in 1869. In 1874 the professorship was limited to chemistry, and from 1885 until he was made emeritus professor, in 1892, his chair was entitled chemistry and hygiene.

M. MAURICE LÉVY has been elected Vice-President of the Paris Academy of Sciences for the current year, in succession to M. van Tiegham, who passes to the presidential fauteuil.

IN the report of the meeting of the Kent Coal Company (*Standard*, December 24), the Chairman is stated to have said that "if there was coal in Kent it must affect that Company for good. If there was not, then every scientific man had been wrong. He did not think that could be." The Dover boring has certainly proved the presence of coal-measures in Kent, but no scientific man can say how far these underground coal-measures extend.

THE *Electrical Review* announces that a competition has just been opened by the Swiss Society of Chemical Industry for a treatise which shall be of service in aiding the development of the electro-chemical industry in Switzerland. A premium of 2000 francs (80*l.*) is being offered to the author of the work which shall be adjudged the best of those sent in. All competitors must send in their work by May 1, 1900, to Herr Dr. Henry Schaeppi, president, Die Schweizerische Gesellschaft für Chemische Industrie, Mitlödi, Switzerland, from whom full particulars of the competition may be obtained.

IT is announced by the *British Medical Journal* that an international congress on tuberculosis and the methods for combating it will be held in Berlin from May 23 to 27. The Imperial Chancellor, Prince Hohenlohe, will preside, and will be supported by an influential Committee, headed by the Duke of Ratibon and Prof. von Leyden. Five divisions of the subject have been agreed on: (1) propagation, (2) etiology, (3) prophylaxis. (4) therapeutics, (5) sanatoria. Each of these questions will be introduced by a short and concise address, so as to leave ample time for free discussion and debate.

THE twenty-sixth annual dinner of old students of the Royal School of Mines will take place at the Hotel Cecil on Friday, January 27. The chair will be taken by Mr. F. W. Harbord. Tickets may be obtained from Mr. H. G. Graves, 5 Robert Street, Adelphi, London, W.C.

MR. G. E. LUMSDEN informs us that he has been asked by the President of the Astronomical and Physical Society of Toronto to collect such confirmatory data as are accessible in respect of the contention that associated with certain lightning-flashes and displays of aurora, there are black or dark phenomena. He would be glad to obtain evidence upon this subject, and would be prepared to purchase, if necessary, photographs or lantern slides of lightning flashes, where black streaks or other phenomena are undoubtedly present. His address is The Parliament Buildings, Toronto, Canada.

SOME interesting facts with reference to the mining and minting of gold and silver are mentioned by Mr. Alexander E. Outerbridge, jun., in a paper published in the December *Journal* of the Franklin Institute. It is remarked that notwithstanding the excitement over the Klondike discoveries, the output from that region is insignificant when compared with the total product of the whole country. Statistics show that the State of Colorado alone added twice as much gold to the world's stock in 1897 as did the Klondike region, and several other States largely exceeded the Klondike output. As to the South African gold fields, American mining engineers who have been engaged in developing them, have computed from surveys of the ground and numerous assays of samples of ore taken from different localities and at different depths, that the gold contained in the ore in sight in the district known as the "Rand," or Witwaatersrand, amounts to the enormous value approximately of 800,000,000*l.*, and at the present rate of production it will take half a century to exhaust these deposits, even though no further discoveries be made. Australasia and the

United States together produced more than one-half of the entire output of gold in 1897, and it is in these two countries that modern methods have been most largely adopted.

The Decimal Association has taken a leading part in educating public opinion, and in making known the advantages of the metric system. The system is used so extensively in scientific work that it is unnecessary to explain in these columns its claims for adoption. The strongest argument in favour of metric weights and measures is the fact that nearly all the leading civilised countries of the world, as well as nearly all our competitors in foreign trade, use them exclusively. From a table given in a pamphlet published by the Decimal Association, it appears that the countries which have already adopted the metric weights and measures represent a population of over 448 millions. Our consuls have almost unanimously reported in favour of the system; our chief Chambers of Commerce have passed resolutions in favour of it; in the new "British Pharmacopœia" the use of the system has been much extended; and numerous trade associations have given support to it; while in no single case has any body of wholesale or retail traders opposed its compulsory adoption. It is now especially urgent that an Act should be passed to make the change compulsory, and all who are interested in this important question are urged to become members of the Decimal Association, and to give it the benefit of their influence and co-operation. The Secretary is Mr. Edward Johnson, Botolph House, Eastcheap, London, E.C.

Reference has been made in these columns on several occasions to Prof. Grassi's work in tracing the propagation of malarial germs by mosquitoes. Further information is now brought to light by communications read before the Reale Accademia dei Lincei during the past month, and published in their *Atti*, vii. 9 and 11. Messrs. G. Bastianelli, A. Bignami and Grassi have now succeeded in tracing the development of the semilunar bodies in the medial intestine of *Anopheles claviger*, kept at a suitable temperature, after these insects had drawn blood from individuals affected by æstivo-autumnal malaria. They have also obtained spring fever by the sole agency of punctures of *A. claviger* in an individual not previously afflicted by malaria and living in a non-malarial locality. Most recently they have observed the later stages of the semilunar bodies in *A. claviger*, and have obtained capsules containing an enormous quantity of filiform bodies apparently non-motile, with one or two amorphous residual masses. The life-history of the malarial parasite is thus proved to be an authenticated case of heterœcism. Concurrently with these observations, Dr. Antonio Dionisi has studied the life-cycle of the endoglobular parasite of the bat, which appears to undergo a similar alternation of generations, the intermediary host being an insect. These conclusions agree with Ross's investigations on the malarial parasites of birds.

The discussion of the meteorological observations recorded at Trevandrum, under the superintendence of Mr. J. Allan Broun, during the years 1853 to 1864, is published in vol. x. part i. of the *Indian Meteorological Memoirs*. The observatory, which was established by the Maharajah of Travancore, was situated approximately in latitude 8° 31′ N., longitude 76° 59′ E. The observations were deposited at the Meteorological Office in London, and the Meteorological Council, recognising the high scientific value of the data, requested the Secretary of State for India, through the Royal Society, to undertake their discussion, which was agreed to, and the work has been ably carried out under the supervision of Mr. J. Eliot, Meteorological Reporter to the Government of India. We can only very briefly refer to a few of the valuable results obtained. The highest temperature observed was 94°·6, in March, and the lowest 59°·9, in December, giving a total range of 34°·7. The highest and lowest mean daily temperatures were 84°·5 and 70°·9, and the highest and lowest mean monthly temperatures were 82°·9 and 75° respectively. The greatest change in twenty-four hours was 5°·1, in May. One of the most noteworthy features of the meteorology of Trevandrum is the remarkable steadiness of barometric pressure; it is highest from January 11–15 (29·731″), it decreases slowly, but steadily, until the end of May, when it is 29·621″, and it increases during the remainder of the year. The absolute maximum of the diurnal range is ·132″, in February, and the absolute minimum ·099″, in July. The relative humidity is large in all months, varying from a minimum of 72·6, in February, to 86·8, in July. The annual rainfall varies considerably; the mean for thirty-nine years (1838 to 1876) is 64·4″. The mean for the three years of greatest fall was 27·7″ more, and the mean for the three years of least fall was 25·8″ less than the mean fall.

We have received a valuable quarto memoir by P. José Coronas, of the Manila Observatory, on the eruption of the volcano Mayon, which occurred on June 25–26, 1897. Mayon is the largest volcano in the island of Luzon, and a brief account is given of the principal known eruptions prior to 1897; but, with three exceptions (those of 1616, 1766 and 1800), these all belong to the present century. In a series of interesting chapters, Father Coronas describes the preparatory phenomena (including the earthquake of May 13), the beginning of the eruption, the ejection of lava, the rain of ashes and dust (which extended to about one hundred miles east of the volcano), the detonations and other subterranean noises, the storm on the volcano, and the end of the eruption. The memoir is issued from the private press of the observatory, and is illustrated by four plates and three figures in the text.

The native arithmetic of Murray Islands, Torres Strait, is described by the Rev. A. E. Hunt in the latest *Journal* (New Series, vol. i. Nos. 1 and 2) of the Anthropological Institute. The only native numerals are netat (one) and neis (two). Higher numbers would be described either by reduplication, as neis netat, literally, two-one for three; neis-i-neis, or two-two for four, &c., or by reference to some part of the body. By the latter method a total of thirty-one could be counted. The counting commenced at the little finger of the left hand, thence counting the digits, wrist, elbow, armpit, shoulder, hollow above the clavicle, thorax, and thence in reverse order down the right arm, ending with little finger of right hand. This gives twenty-one. The toes are then resorted to, and these give ten more. Beyond this number the term gaire (many) would be used. English numerals are now in general use in the Islands.

The Chinch Bug (*Blissus leucopterus*, Say), one of the most destructive of North American insects, forms the subject of *Bulletin* No. 15 (New Series) of the U.S. Department of Agriculture, Division of Entomology. A previous report on the same subject, by Dr. L. O. Howard, was published as No. 17 of the Old Series of the *Bulletin*; the present has been prepared and brought up to date by Prof. F. M. Webster, the entomologist of the Ohio Agricultural Experiment Station, under Dr. Howard's supervision. The Report deals with the probable origin, diffusion and habits of the insect, with notices of the natural checks to its increase, and the remedial and preventive measures which may be used against it. The Report also includes a notice of various American *Hemiptera* which are likely to be mistaken for the Chinch Bug; and of an allied species (*Blissus doriae*, Ferr.) which occcurs in Italy and Hungary.

Dr. G. Christian Hoffmann sends a report of the Section of Chemistry and Mineralogy of the Geological Survey of Canada. Aided by two assistants, Mr. F. G. Wait and Mr.

R. A. A. Johnston, analyses have been made of coals and lignites, of various minerals, ores, rocks, and waters. Among the minerals, there is one named Baddeckite, a new variety of Muscovite, found at Baddeck, Victoria Co., Nova Scotia. It is a hydro-muscovite, in which a very large proportion of the alumina is replaced by ferric oxide. The occurrence in Canada of Chalcanthite and Xenotime are for the first time recorded. An analysis of a spring-water on Cañon Creek, in Alaska, proved the presence of 266 grains of mineral matter—chiefly salts of lime and magnesia.

The Devonian fossils of Canada have for many years been a subject of special study by Mr. J. F. Whiteaves, palæontologist to the Geological Survey of Canada. In the concluding part of the first volume of "Contributions to Canadian Palæontology," Mr. Whiteaves describes some additional or imperfectly understood fossils from the Hamilton formation of Ontario. These include some supposed Cliona-borings, Corals, Crinoids, Polyzoa, Mollusca, Crustacea and Fishes. Mr. Whiteaves adds a revised list of all the known fossils from the Hamilton formation. Of these, *Atrypa reticularis* appears to be the only well-known European species. The Fishes include *Ptyctodus* and *Aspidichthys.*

Mr. John H. Schaffner, of the Ohio State University, writing in the *Journal of Applied Microscopy*, recommends the use of anilin safranin and gentian violet as affording a very good and durable stain for starch grains.

From Prof. Jamshedji Edalji we have received papers on "Reciprocal Polygons" and "Associated Conics," in which many well-known theorems and other less-known properties of conics are proved, the method of reciprocation being largely used. The properties of ellipses touching a pair of conjugate hyperbolas afford interesting exercises, but we could wish that the text and figures were rather better printed.

Messrs. G. W. Bacon and Co., Ltd., have just published a well-coloured wall diagram of common poisonous plants. The pictures of the foxglove, woody nightshade, and monkshood are particularly good. The chart should be very useful in country schools to familiarise children with the plants to be avoided.

Prof. Mandel's translation of Prof. Hammarsten's "Textbook of Physiological Chemistry" was reviewed in these columns four years ago (vol. l. p. 449). A second American edition, prepared from the third revised German edition by the same translator, who produced an excellent English version of the earlier one, has now been published by Messrs. John Wiley and Sons. The new volume is essentially the same as the first edition, being simply brought up to date.

A copy of the first number of *Science Work*—a monthly review of scientific literature—has been received. The contents consist of a few general notes, the titles of a selection of articles which have recently appeared in some periodicals, a directory of lecturers, and a synopsis of some scientific expeditions now in the field. The publishers of this venture are Messrs. Robert Aikman and Co., Manchester.

We have received a copy of a pamphlet entitled "Replica di Krupp alla Protesta del Signor Bashford," published by the Cambridge University Press. In the *Revista di Artiglierca e Genio*, Dr. Bashforth charged the Krupp firm with making use of his general tables of velocity and time, and velocity and space, containing the results of his experiments, without acknowledgment. Mr. F. Krupp has replied on behalf of the firm, and the pamphlet now received contains a translation of this letter presenting the Krupp view of the matter, with an introduction and notes by Dr. Bashforth, which he holds afford ample justification for his protest.

The last two parts received (Heft 3 and 4) of Engler's *Botanische Jahrbücher für Systematik, Pflanzengeschichte, u. Pflanzengeographie* contain the following articles:—The conclusion of Hieronymus's account of the Pteridophyta of Argentina; Anderson on the History of the Vegetation of Sweden; Höck on the Flora of the alder-plantations of North Germany; Fedtsckenko on the Flora of the southern Altai mountains; a continuation of Pfitzer's Classification of the Orchideæ; the commencement of a paper by Perkins on the Monimiaceæ; and a description by Hallier of *Hildebrandtia*, a new diœcious genus of Convolvulaceæ.

The number of new syntheses capable of being carried out with the aid of diazomethane, would appear to be by no means exhausted. Prof. H. von Pechmann describes in the current number of the *Berichte* a new synthesis of pyrazol by means of this active reagent. A solution of diazomethane in ether is cooled to 0° C. and saturated with dry acetylene in a large flask, and the whole allowed to stand. The reaction is rather slow, about two days being required; simple evaporation then deposits pure pyrazol in fine prisms in quantity about fifty per cent. of the theoretical value.

The announcement is made (by M. and Mme. Curie and M. Bémont), in the current number of the *Comptes rendus*, of the probable existence of a new element, to which the name of radium is provisionally given. It will be remembered that M. Becquerel discovered that the metal uranium and its salts possessed the remarkable property of emitting rays much resembling the X-rays in penetrative power and action upon electrified gases. Using this new weapon of research, M. and Mme. Curie were able to isolate from pitchblende a new element (*polonium*) resembling zinc in its chemical properties, differing from this metal, however, in possessing radio-active properties of a similar character to uranium, but of greater intensity. In following up this work they (in conjunction with M. Bémont) have now obtained indications of another element possessing still more powerful radio-active properties, and chemically resembling barium, inasmuch as it is precipitated neither by sulphuretted hydrogen, by ammonium sulphide, nor by ammonia; the sulphate is insoluble in water and in acids; the carbonate insoluble in water; and the chloride, although very soluble in water, insoluble in alcohol. Fractional precipitation of the chlorides by alcohol showed an increasing amount of radium in the precipitate, as measured by its radio-activity, the final fractions possessing an activity 900 times greater than uranium. The spectrum of this chloride was found by M. Demarcay to give, besides the lines of barium, lead, calcium and platinum, a strong new line ($\lambda = 3814{\cdot}8$), which in his opinion confirms the existence of a new element.

In a recent number of the *Proceedings* of the American Academy of Arts and Sciences, Prof. T. W. Richards, of Harvard, describes a series of interesting experiments on the retention and release of gases occluded by the oxides of metals, a subject of special importance to those engaged in the determination of atomic weights. He shows that oxide of copper prepared by ignition of the nitrate contains between four and five times its volume of occluded gases up to a temperature of 860° C. Slightly above this temperature the bulk of the gas is given off, but before 1000° is reached the copper oxide itself decomposes. Of the gases resulting from the decomposition of the nitrate, the oxygen escapes more rapidly than the nitrogen. The explanation given by Prof. Richards is that the gases proceed from basic nitrate imprisoned in the oxide, the N_2O_5 being resolved into nitrogen and oxygen. The oxygen escapes more rapidly than the nitrogen, by uniting with metal or a lower oxide which has momentarily released some of its proper supply of oxygen. The released oxygen passes onwards and outwards by a similar process, so that there is a continuous transference of oxygen by a sort of Grotthus chain of unstable copper oxide molecules. This view is in harmony with the fact that cupric oxide, the most easily reducible of the oxides investigated, is the one which parts with its occluded oxygen most easily, at the same time obstinately retaining the nitrogen, whilst the oxides of zinc and magnesium, being more stable, retain the oxygen persistently. It was found that the electrical conductivity of copper oxide was much increased at a temperature approaching redness, whilst that of zinc oxide was much less increased, and that of magnesium oxide not at all. This would be explained by the copper oxide being to a certain extent dissociated by heat, and permitting of some metallic conduction. Cupric oxide was found to give up oxygen steadily when heated in vacuo to 790°, cuprous oxide being found in the residue.

THE additions to the Zoological Society's Gardens during the past week include a Rhesus Monkey (*Macacus rhesus*, ♀) from India, presented by Mr. A. Urban Smith; six Snow Buntings (*Plectrophanax nivalis*), European, purchased; three Grey Squirrels (*Sciurus cinereus*) from North America, deposited; a Great Eagle Owl (*Bubo maximus*), bred in the Gardens.

Errata.—In the necrology of Prof. Allman, p. 202, line 18, delete "Regius"; p. 204, line 37, for "Grumera" read "Gunnera."

OUR ASTRONOMICAL COLUMN.

COMET CHASE.—The following ephemeris of Comet Chase is a continuation of that which we have previously published from Herr J. Möller's computation:—

1899.	R.A. (app.) h. m. s.	Decl (app.) ° ′	Br.
Jan. 1	11 5 50	+29 23·5	1
7	6 45	29 46·1	1
9	7 33	30 8·7	1
11	8 14	30 31·5	1
13	8 48	30 54·6	1
15	11 9 15	+31 17·9	1

PLANET WITT (DQ 1898).—Although only of the twelfth magnitude, planet Witt should be closely followed and good positions measured as opportunities afford. The accompanying ephemeris for the coming fortnight will prove useful to those whose instruments are large enough to follow this interesting body.

Berlin Midnight.

1898.	R.A. h. m. s.	Dec. ° ′
Jan. 5	23 3 0	+4 37·6
7	7 51	5 3·3
9	12 45	5 29·6
11	17 42	5 56·1
13	22 44	6 23·0
15	27 48	6 50·2
17	32 56	7 17·7
19	23 38 6	+7 45·4

The above ephemeris, calculated by Dr. E. Millosevich (*Astr. Nachr.*, 3532), requires, according to an observation by Dr. Cerulli, a correction of about – 5s. in R.A., and – 0′·3 in declination.

ASTRONOMICAL PHOTOGRAPHY WITH SMALL INSTRUMENTS.—The earnest worker, even with only small means at his disposal, may perform important work in astronomy by the aid of lenses of comparatively small aperture. The great advances made in the sensitiveness of dry plates helps us now to photograph quite easily objects which formerly presented a great difficulty.

By replacing the eyepiece of a good telescope with a small camera, with a suitable positive or negative lens, very useful work can be done, although the scale of magnification need not be very great. The employment of a negative lens makes the instrument more convenient for use, as a shorter telescope tube can be utilised.

One great function of photographs of celestial objects is to record changes in the appearance of bodies or regions studied. In the case of the former large images are required, and the photo-telescopes are the most suitable; in the latter, large fields, but not necessarily very large magnification, are required for many purposes of great interest. In the *Photographische Correspondenz*, Herr P. Zschokke points out in an interesting article the useful work an amateur can accomplish by means of small instruments, and gives an interesting table showing the relative sizes of apertures, focal lengths of objectives, focal lengths of combinations, &c. Since, in this class of instrument, the size of the diameter of the image formed is the main point, we give below the table containing these values, which has been reproduced in the *British Journal of Photography* (December 23, 1898). All the figures in the following columns refer to millimetres.

Aperture.	Focus of objective.	Focus of tele-photo combination.	Entire length of telescope.	Diameter of image of sun or moon.
51	730	5370	980	50
81	1218	8060	1350	75
108	1624	11370	1960	108
135	1949	16115	2365	150
135	1353	16115	1800	150
162	2599	32230	3510	300
162	2599	24170	3155	225

A NEW VARIABLE IN CASSIOPEIA.—Dr. T. D. Anderson, writing in the *Astr. Nachr.* (No. 3533), states that the star which has the position for 1855, R.A. 23h. 37·5m., and Decl. + 55° 45′, is a hitherto unnoticed variable. This star, which is not recorded in the BD, was first seen by Dr. Anderson in the beginning of 1897, and was then only 0·2 magnitudes fainter than + 55°·3007, the magnitude of which was then fairly estimated as 9·0. In September 23 of the same year the star was found missing, although another star of magnitude 10·3 could be easily seen 3′ to the north of the missing star. Subsequent searches failed to pick up the same star again; and Dr. Anderson, coming to the conclusion that the object was probably a Nova, only examined the region very occasionally.

Last month, however, on the 5th, he again examined the region, and at last found the object of his search. At this time it excelled in brilliancy its neighbour of magnitude 10·3 by as much as it was itself surpassed by BD + 55°·3007.

OBSERVATIONS OF α ORIONIS.—Mr. R. T. A. Innes, writing from the Cape Observatory (*Astr. Nachr.*, 3533), mentions that he has been observing α Orionis (Betelgeuze) on several evenings, and the star was found to be only slightly brighter than Aldebaran. Last season, as Mr. Innes states, Betelgeuze was twice as bright as Aldebaran, which is its ordinary state. From this observation it may be concluded that one of the irregular minima of Betelgeuze is approaching.

PRIZES PROPOSED BY THE PARIS ACADEMY OF SCIENCES FOR 1899.

THE following are the prize subjects proposed by the French Academy of Sciences for the present year.

The Bordin Prize (3000 fr.) for a study of the questions relating to the determination, properties, and application of systems of orthogonal curvilinear coordinates of *n* variables, indicating particularly, in as precise a manner as possible, the degree of generality of these systems; the Francœur Prize (1000 fr.) and the Poncelet Prize (2000 fr.), for useful work in the field of pure and applied mathematics. In Mechanics is offered the Extraordinary Prize of 6000 francs, for any invention increasing the efficiency of the French naval forces; the Montyon Prize (700 fr.), for the invention or improvement of instruments useful to the progress of agriculture or the mechanical arts; the Plumey Prize (2500 fr.), for any invention contributing to the progress of steam navigation; the Tourneyron Prize, for an improvement in any point of the theory of pumps. In Astronomy, the Lalande Prize (540 fr.), for the most interesting or useful astronomical observation made during the year: the Valz Prize (460 fr.) for astrononomical work. In Physics, the La Caze Prize (10,000 fr.). In Statistics, the Montyon Prize (500 fr.). In Chemistry, the Jecker Prize (10,000 fr.) for discoveries in organic chemistry; the Cahours Prize (3000 fr.) for the encouragement of research in young chemists already known by their published work; and a La Caze Prize of 10,000 fr. In Mineralogy and Geology, the Delesse Prize (1400 fr.), and the